

## ABSTRACT

A method of writing a light guiding structure in a bulk glass substrate including selecting a bulk glass substrate made from a soft silica-based material; and focusing an excimer laser beam at a focus within said substrate while translating the focus relative to the substrate along a scan path at a scan speed effective to induce an increase in the refractive index of the material along the scan path relative to that of the unexposed material while incurring substantially no laser induced breakdown of the material along the scan path. Various optical devices, including waveguides can be made in this way.

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